AMENDMENT TO THE SPECIFICATION

a) Please add the following section "Brief Description of the Drawings" on page 21 prior to the section "Summary of the Invention".

Brief Description of the Drawings

Fig. 1A shows a continuous 1-D signal.

Fig. 1B shows the same 1-D signal discretized at 60 sample points.

Fig. 1C shows that we could send an imprecise representation of the amplitudes, which would require less bits but would result in poor reconstruction.

Fig. 1D shows a generating equation.

Fig. 1E shows three basis functions.

Fig. 1F shows the function depicted in Fig. 1B as slightly altered.

Fig. 1G shows the resultant reconstruction error.

Fig. 2A shows a continuous signal with a very sharp transition or edge in the domain.

Fig. 2B shows the discretized version of the continuous signal exhibited in Fig. 2A.

Fig. 2C shows the reconstruction results based on maintaining a small number of coefficients.

Fig. 2D depicts a case where many coefficients are used and the associated residual error is very small.

Fig. 3 shows Haar functions.

Fig. 4A shows an example of different scale information for a given 1-D signal.

Fig. 4B shows a smoothly varying coarse scale function f1(x).

Fig. 4C shows one other function f2(x).

Fig. 5A shows the original data for a 1-D signal (scale 1).

Fig. 5B depicts an averaging filter convolved across the original signal.

Fig. 5C depicts sub-sampling of the resultant signal to obtain a next coarser band or scale (scale 2).

Fig. 5D depicts a next coarser band or scale (scale 3).

Figs. 6A-6E show a similar process in 2-D.

Fig. 6F depicts a filter for two 1-D passes.

Fig. 6G shows the effective averaging filter with a very large support or domain.

Fig. 7A displays a function.

Fig. 7B shows a nearest neighbor filter.

Fig. 7C shows a reconstructed result after convolving the filter of Fig. 7B with the function of Fig. 7A.

Fig. 7D shows an associated error with respect to the original scale 2 function depicted in Fig. 6C.

Fig. 7E shows a prediction filter.

Fig. 7F shows a reconstructed result after applying the prediction filter of Fig. 7E on the result shown in Fig. 7D.

Fig. 7G shows the associated error with respect to the original scale 1 function depicted in Fig. 6A.

Fig. 8 depicts an averaging process repeated N-1 times, thus constructing a pyramid of N levels.

Figs. 9A-9C depict an example of quantization.

Fig.10A shows that the 2-D image only specifies values for the pixels located between (0,N) in the x-direction and (0,M) in the y-direction.

Fig. 10B shows one of the problems inherent in applying a filter operation.

Fig. 10C outlines a procedure to apply a mirror image reflection boundary condition.

Fig. 11 shows an example of generalized non-rectangular domains in 2-D.

Figs. 12A-12D show several examples of very sharp internal edge boundaries or features.

Fig. 13 shows that the support and hence order of the prediction filter tends to shrink as the edge transition is approached.

Fig. 14A depicts a sample MPEG-4 test sequence.

Fig. 14B depicts a result of an images segmentation routine being applied to Fig. 14A.

Fig. 15A shows a point that is located near a segment boundary but still inside the segment and another point that is located in the interior.

Fig. 15B shows points that are inside of the intersection a segment and a filter.

Fig. 15C shows points located near the boundary of a segment and points located in the interior.

Figs. 16A-16I show an example of how, in the current embodiment of the invention, a transform will employ alternative rules when approaching a boundary.

Fig. 17A shows a "diagonal trough".

Fig. 17B shows a "trough" with a bend.

Fig. 17C shows a "slanted surface."

b) Please replace the paragraph on page 9, lines 19-28 with the following where amendments made are shown.

For an arbitrary multi-dimensional signal the construction of multiple scales is generally achieved through a successive application of localized averaging and sub-sampling. [[Figs. 5A-E]] <u>Figs. 5A-D</u> show this process for a more complicated 1-D signal. The original data itself in fact corresponds to the very finest scale herein labeled scale 1 as seen in Fig. 5A. Then an 'averaging' filter is applied across the domain and sub-sampled at a subset of the points. In Fig. 5B an averaging filter of (0.25, 0.5. 0.25) was first convolved (i.e. weighted average) across the original signal. But this produced a resultant signal that is still sampled at 20 points. Now we sub-sample the resultant function at every other point thus obtaining the signal in Fig. 5C with only 10 sample points. This is now the next coarser band or scale, i.e. scale 2. This process is often called an 'update'.

c) Please replace the paragraph on page 12, lines 16-19 with the following where amendments made are shown.

If one were to continue the process based on the reconstructed result shown in Fig. 7C by applying the prediction filter displayed in [[Fig. 7D]] Fig. 7E, the reconstructed result would be as shown in [[Fig. 7E]] Fig. 7F. The associated error with respect to the original scale 1 function is depicted in Fig. 6A is shown in [[Fig. 7F]] Fig. 7G.